

CLAIMS:

1. Servo controller for controlling a focus actuator in an optical pickup for an optical disc drive; the controller comprising signal inputs for receiving respective detector signals from a photo-detector of such an optical pickup;
wherein the servo controller is adapted to process the signals received at its
5 inputs to produce a focal error signal which is zero if the signals at the inputs represent the situation of a focussed beam incident on the center of such a photo-detector;
the servo controller further being adapted to subtract an offset parameter from said focal error signal, and to provide the difference as a control output signal; or, alternatively, the servo controller further being adapted to add an offset parameter to said
10 focal error signal, and to provide the sum as a control output signal.
2. Servo controller according to claim 1, adapted for receiving respective detector signals from a 4-quadrant photo-detector of an optical pickup;
wherein the servo controller is adapted to produce a focal error signal which is
15 zero if the signals at the four inputs all have identical magnitude.
3. Servo controller according to claim 2, adapted to calculate the focal error signal according to the formula
$$FE = SA + SB,$$

20 wherein SA is proportional to the difference between the input signals received at the first and second inputs,
and wherein SB is proportional to the difference between the signals received at the third and fourth inputs.
- 25 4. Servo controller according to any one of the previous claims, adapted to perform a calibration procedure calculating an operative value for the offset parameter on start up of the servo controller, and to maintain the offset parameter constant during operation.

5. Servo controller according to claim 4, adapted to monitor, during said calibration procedure, a parameter derivable from the input signals received at the inputs and indicative of photo-detector output signal quality;
to stepwise change the value of the offset parameter and to measure the
5 corresponding value of said parameter;
and to set the operative value for the offset parameter as the value corresponding to the best value of the said parameter.
6. Servo controller according to claim 4, adapted to monitor, during said
10 calibration procedure, a parameter derivable from the input signals received at the inputs and indicative of photo-detector output signal quality;
to stepwise change the value of the offset parameter until the offset parameter reaches a value $\phi(n)_{MAX}$ where the value of said parameter reaches a predetermined threshold value;
15 to stepwise change the offset value into the other direction until the offset parameter reaches a value $\phi(n)_{MIN}$ where the value of said parameter reaches the same threshold value;
and to calculate the operative value of the offset parameter as
 $\{\phi(n)_{MAX} + \phi(n)_{MIN}\}/2$.
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7. Servo controller according to any one of the claims 1-3, further comprising an offset input for receiving the offset signal.
8. Optical pickup for an optical disc drive comprising:
25 a photo-detector;
an objective lens mounted displaceably with respect to the photo-detector;
an optical displacement actuator for displacing the objective lens;
a servo controller according to any one of the previous claims, receiving an output signal from the photo-detector as input signal, and generating a control signal for
30 controlling the actuator on the basis of said photo-detector output signal.
9. Optical disc drive, for optically reading information from an optical disc and/or writing optical information into an optical disc, comprising an optical pickup according to claim 8.